

The Sun, its extended corona, the interplanetary space, the Earth's magnetosphere, ionosphere, middle and low atmosphere, are all parts of a complex system – the heliosphere. Various manifestations of solar activity cause disturbances known as space weather effects in the interplanetary space, near-Earth environment, and all the Earth's "spheres. Long-term variations in the frequency, intensity and relative importance of the manifestations of solar activity are due to the slow changes in the output of the solar dynamo, and they define space climate. Space climate governs long-term variations in geomagnetic activity and is the primary natural driver of terrestrial climate. To understand how the variable solar activity affects the Earth's environment, geomagnetic activity and climate on both short and long time scales, we need to understand the origins of solar activity itself and its different manifestations, as well as the sequence of coupling processes linking various parts of the system. This session provides a forum to discuss the chain of processes and relations from the Sun to the Earth's surface: the origin and long-term and short-term evolution of solar activity, initiation and temporal variations in solar flares, CMEs, coronal holes, the solar wind and its interaction with the terrestrial magnetosphere, the ionosphere and its connection to the neutral dominated regions below and the plasma dominated regions above, the stratosphere, its variations due to the changing solar activity and its interactions with the underlying troposphere, and the mechanisms of solar influences on the lower atmosphere on different time-scales. Particularly welcome are papers highlighting the coupling processes between the different domains in this complex system.